HS7.40/3 4/1953

FEDERAL - STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

Montana and Northern Wyoming
Upper Missouri, Upper Columbia and Yellowstone Rivers

By
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Montana Agricultural Experiment Station

In cooperation with the U. S. Forest Service, U. S. Geological Survey, National Park Service, U. S. Bureau of Reclamation, State Engineers of Montana and Wyoming and other Federal State and local organizations.

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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY
AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in this bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge
River Forecast Center
U. S. Weather Bureau
712 Federal Office Building
Kansas City 6, Missouri

FEDERAL--STATE COOPERATIVE SNOW SURVEYS

AND

IRRIGATION WATER FORECASTS

FOR

MONTANA AND NORTHERN WYOMING

Upper Missouri and Upper Columbia River
Basins

Report Prepared
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IRRIGATION WATER SUPPLY OUTLOOK
FOR SEASON 1953
AS OF APRIL 1, 1953

April 1st snow survey measurements made over the Upper Missouri Basin indicate that the water supply for irrigation use will be FAIR for this coming season. The snow pack this season is 76% of last year (1952), and about 95% of the average over 5-18 years' records.

Due to the dry fall and mild winter temperatures, the ground is dry under the snow pack and the soil is not frozen. The present condition of the snow is very ripe, and with normal temperatures during the spring months, it should leave the mountains early. Those irrigation projects under regulated reservoirs should have a good supply, while those under unregulated streams will need supplemental water for late July and August irrigation.

The snow pack over the Wind River and Big Horn River in Wyoming is generally fair, averaging approximately 85% of average and considerably below last year. The soil under the snow is dry and unfrozen. The snow pack itself is ready to leave the mountains with normal spring temperatures. It is anticipated that the runoff this season will be early and that there will be very little hold-over for mid-summer irrigation. Those irrigation projects under reservoirs should have a good supply.

The snow pack over the Columbia River Basin in Montana is generally good, and there should be sufficient water for irrigation and power supply during the summer through July. However, the soil under the snow is dry and not frozen. Considerable soil priming will be necessary before runoff starts. It is anticipated that the runoff will be early due to the high density of snow and general high densities over the entire basin. The snow pack this season is approximately 83% of last year and about 95% of average for a period of 5-17 years.

JEFFERSON RIVER: April 1 snow surveys indicate that the supply for irrigation water this season will be good - not as good as last year, but in comparison with past records, the average indicates about 101% snow pack. The Beaverhead River at Barratts should flow approximately 193,000 acre feet during the April-September season, or 97% of average. The Big Hole River at Melrose should flow approximately 789,000 acre feet from April-September, or 101% of average. The Jefferson River at Sappington should flow approximately 85% of average. Detail river forecasts are listed on the forecast sheet of this bulletin. for the Missouri River in Montana.

MADISON RIVER: On the Madison River this season, the snow pack is approximately 57% of last year and 99% of the average year over 18 years of records. It is anticipated that the Madison River at Yellowstone will flow approximately 175,000 acre feet or 88% of average during the season April-September.

GALLATIN RIVER: The snow pack on the Gallatin River averages very close to the Madison, showing 64% of last year and 93% of average. The Gallatin River at Gateway should flow approximately 403,000 acre feet for the season April-September, or 89% of average.

MISSOURI RIVER MAIN STEM: The Missouri River main stem below Three Forks will carry a fair water supply this coming season. The snow pack on the tributaries between Toston and Fort Benton indicate approximately 75% of last year or 79% of average. At Toston, the flow from April-September is forecast 86% of average, while the Fort Benton forecast is 90% of average. Detailed figures are listed on the forecast sheets of this bulletin.

UPPER YELLOWSTONE RIVER: The snow pack in Yellowstone Park this season is good to fair, indicating approximately 79% of last year and 101% of the average over 7-19 years. It is anticipated that the April-September seasonal flow at Corwin Springs will be 92% of average, 92% at Livingston, 80% at Billings, 81% at Miles City, and 80% at Sidney. Detailed volumes for these stations are shown on the forecast sheet for the Missouri Basin in this bulletin.

LOWER YELLOWSTONE RIVER (IN WYOMING): The snow pack on the Popo Agie River this year indicates approximately 56% of last year and 82% of average over 4-17 years. There should be a good water supply for irrigation, although it is anticipated that it will come early in the season. The North Popo Agie near Lander will flow approximately 68% of average, the Little Popo Agie near Hudson 82% of average, with the main Popo Agie at Riverton flowing 275,000 acre feet during the April-September season, or 71% of average.

WIND RIVER: The snow cover on the Upper Wind River Basin is fair this season, indicating approximately 83% of 1952 and 86% of the average of from 5-18 years of records. The snow is loose and ready to leave the mountains with normal spring temperatures. The runoff season should be early, with considerable snow water being used for soil priming. The Wind River at Riverton will flow approximately 94% of average or 564,000 acre feet during the April-September season. The snow pack above Buffalo Bill Reservoir should produce approximately 88% of the average seasonal supply, or 693,000 acre feet of water.

BIG HORN RIVER: The Big Horn River as a whole will flow approximately 85% of average during the coming season. Detailed figures for Thermopolis, Kane and St. Xavier are shown on the forecast sheets for the Yellowstone River tributaries in Wyoming. The snow pack on the Big Horn Mountains feeding the Tongue and Powder Rivers averages approximately 102% of 1952 and 101% of average for the Tongue, while the Powder averages 65% of 1952 and only 76% of average. These figures are based on 3-18 years of records. Detailed discharge figures for the April-September period are shown on the forecast sheet for the Yellowstone River tributaries in Wyoming.

COLUMBIA RIVER BASIN IN MONTANA: The snow pack on the Columbia River Basin in Montana is higher in percentage of average than the Missouri River Basin. The snow pack on the Upper Clarks Fork Basin averages approximately 82% of last year and 102% of average for 18 years of records. It is anticipated that the runoff will come early, and also that considerable snow will be lost in soil priming due to the unfrozen condition of the soil below the snow and the dry condition which is reflected by the slight rainfall of last fall. It is forecast that 1,590,000 acre feet of water will flow past the station above Missoula during the April-September irrigation season. This is 97% of the 10-year average ending in 1950. Other stream flow forecasts are listed on the forecast sheet for the Upper Columbia River in Montana.

The snow cover on the Bitterroot Basin this season indicates 82% of 1952 and 107% of average over 17 years of records. It is anticipated that the Bitterroot River at Darby will flow approximately 571,000 acre feet during the April-September period, or 98% of average.

The snow cover on the Flathead River above Kalispell is approximately 87% of last year and 92% of the average for 6-18 years' records. It is anticipated that the April-September seasonal flow at Columbia Falls for the three tributaries will be 5,887,000 acre feet, which is exactly 100% average. The South Fork of the Flathead River below Hungry Horse Dam should flow approximately 2,008,000 acre feet for the same period, or 96% of the 10-year average ending in 1950.

The stream flow forecasts for the several stations and tributaries to the Flathead are shown on the forecast sheet in this bulletin.

APRIL 1, 1953

FORECAST OF SEASONAL STREAM FLOW

UPPER MISSOURI RIVER IN MONTANA	Seasonal Streamflow in Thousands of Acre Feet				
	FORECAST 1953 April-September	% 10-Yr. Avg.	Measured Runoff April - Sept.* 1952	1951	10-Yr. Avg. '41-'50
RED ROCK RIVER					
Monida (Near) (1)	95.9	112			86
Kenedy Ranch (at)	74.4	120			62
BEAVERHEAD RIVER					
Barratts, Montana	193	97	222	170	198
BIGHOLE RIVER					
Melrose (near)	789	101		861	781
JEFFERSON RIVER					
Sappington (at)	984	86		1,144	1,134
MADISON RIVER					
West Yellowstone (near)	175	88	248	234	199
Garyling (near) (2)	292	70			419
McAllister (near) (3)	527	72			733
GALLATIN RIVER					
Gateway (near)	403	89	596	399	454
Logan (at)	405	82	745	412	491
Hyalite Creek	33.6	92	41.0	27.7	36.7
MISSOURI RIVER					
Toston (at)	2,110	86	2825	2217	2,450
Fort Benton (at)	3,192	90		4072	3,524
Loma	3,702	88		5162	4,201
Zortman	3,982	87		5524	4,564
SUN RIVER					
Vaughn (at) (5)	380	95			401
MARIAS RIVER					
Shelby (at)	441	81			545
Brinkman (near)	442	80			549
YELLOWSTONE RIVER					
Corwin Springs (at)	1720	92	2184	2254	1,858
Livingston (near)	1982	92		2474	2,166
Billings (at)	3349	80	4642	4469	4,167
Miles City (at)	5509	81	6264	7237	6,774
Sidney (near)	5682	80		7063	7,086
SHIELDS RIVER					
Wilsall (near)	34.6	79		32.2	44
CLARK FORK RIVER					
Chance (at)	465	79		731	589
Edgar (at)	491	78	613	766	630
JUDITH RIVER					
Utica (near)	33.4	76	48	40	44

(1) Observed flow plus change in Storage in Lima Reservoir
(2) Observed flow plus change in Storage in Hebgen Lake
(3) Observed flow plus change in Storage in Hebgen and Ennis Lakes
(5) Observed flow plus change in Storage in Gibson, Willow Creek and Pshkun Res .
(*) Preliminary data furnished by U.S. Geological Survey. Subject to revision.

APRIL 1, 1953

FORECAST OF SEASONAL STREAM FLOW

YELLOWSTONE RIVER TRIBUTARIES IN WYOMING	Seasonal Stream Flow in Thousands of acre feet				
	Forecast, 1953 April-September	% 10-Yr. Avg.	Measured runoff April - Sept.*		10-Yr. Avg. 41-50
			1952	1951	
WIND RIVER					
Riverton (at) (6)	546	94			534
BIG HORN RIVER					
Thermopolis (at) (7)	905	89			1,011
Kane (at)	1,264	86	767	1,514	1,475
St. Xavier (near) (8)	1,883	84	1,286	2,365	2,232
BULL LAKE CREEK					
Bull Lake (above)	145	72			202
Lenor (near) (6)	135	70			192
POPO AGIE RIVER					
Riverton (near)	275	71			375
NORTH FORK POPO AGIE RIVER					
Lander (near) (9)	51	68		87	75
LITTLE POPO AGIE RIVER					
Hudson (at)	47	82			57
GREYBULL RIVER					
Meeteetse (at)	182	77			238
Basin (near)	87	78			122
SHOSHONE RIVER					
Buffalo Bill Dam (below)(10)	693	88		862	785
Byron (at) (10)	485	81	484	691	601
TONGUE RIVER					
Dayton (near)	95	83	104	108	114
Acme (near)	208	83		206	250
Decker (near) Montana(11)	211	76	261	210	276
POWDER RIVER					
Arvado (at)	136	83		59	165
Moorehead (at) Montana	242	77	244	117	313
Locate (at) Montana	274	70	303	150	390
MIDDLE FORK POWDER RIVER					
Kaycee (near)	61	75		50.3	81
NORTH FORK POWDER RIVER					
Mayoworth (near)	19	95		12	20
CLEAR CREEK					
Buffalo (near)	33	82		26	40
Arvado (near)	92	70		53.4	132

(6) Observed flow plus storage in Bull Lake and Pilot Butte Reservoirs
(7) Observed flow plus storage in Boysen Reservoir
(8) Observed flow plus storage in Boysen and Buffalo Bill reservoirs
(9) Observed flow plus storage in Bull Lake Reservoir
(10) Observed flow plus storage in Buffalo Bill Reservoir
(11) Observed flow plus storage in Tongue Reservoir
(*) Preliminary data furnished by U.S. Geological Survey. Subject to revision.

APRIL 1, 1953

FORECAST OF SEASONAL STREAM FLOW

UPPER COLUMBIA RIVER IN MONTANA	Seasonal Streamflow in thousands of acre feet					
	FORECAST - 1953		%	Measured runoff April - Sept.*		10-Yr. Avg. 41-50
	April-Sept.	April-July	10-Yr. Avg.	1952	1951	
CLARK FORK RIVER						
Bonner (above) (3)	816	735	105	-	941	781
Missoula (above)	1,590	1,429	97	1,782	2,369	1,631
Missoula (below)	3,068	2,792	101	3,268	4,127	3,044
St. Regis (at)	4,091	3,751	101	4,318	5,492	4,042
Plains (near) (4)	11,044		102	9,421	13,302	10,869
Cabinet Gorge (at) (4)	11,809		98		15,178	12,110
BLACKFOOT RIVER						
Bonner (near)	774	696	91		1,295	851
BITTERROOT RIVER						
Darby (near)	571	533	98	608	663	544
At Mouth (6)	1,478		104	1,362	1,618	1,413
FLATHEAD RIVER						
Columbia Falls (near)	1,682	1,534	99		2,396	1,705
Columbia Falls (at) (7)	5,587	5,025	100	7,224	5,722	5,604
Polson (near) (4)	6,653		100	4,993	6,363	6,621
MIDDLEFORK FLATHEAD RIVER						
West Glacier (near)	1,598	1,482	96		2,138	1,664
SOUTH FORK FLATHEAD RIVER						
Columbia Falls (near)(7)	2,008	1,892	96	2,058	2,511	2,091

(3) Difference in observed flow, Clark Fork above Missoula and Blackfoot at Bonner.
(4) Observed flow plus change in storage in Flathead Lake & Hungry Horse Res.
(6) Difference in observed flow, Clark Fork above and below Missoula.
(7) Observed flow plus change in storage in Hungry Horse Reservoir.
(*) Preliminary data furnished by U.S. Geological Survey, subject to correction.

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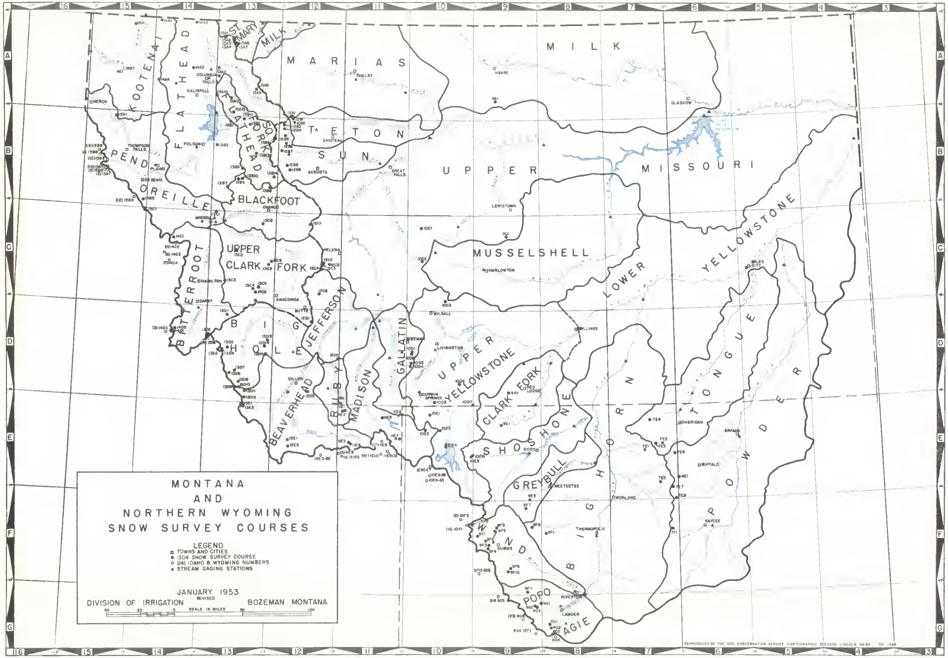

MONTANA
AND
NORTHERN WYOMING
SNOW SURVEY COURSES

LEGEND
- ▫ TOWNS AND CITIES
- ● 13D4 SNOW SURVEY COURSE
- ○ (14) IDAHO & WYOMING NUMBERS
- ▲ STREAM GAGING STATIONS

JANUARY 1953
REVISED

DIVISION OF IRRIGATION BOZEMAN MONTANA

SCALE IN MILES 50 25 0 50 100

INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

MISSOURI RIVER DRAINAGE

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Location Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By:[b]
JEFFERSON RIVER								
(ROCK-BEAVERHEAD)								
Lakeview Ridge	11E3	7400	27	14S	2W	1948	3,4,5	9
Lakeview Canyon	11E4	6930	26	14S	2W	1948	3,4,5	9
Limekiln	12E2	6950	5	15S	9W	1948	3,4	1
White Pine Ridge	12E1	8850	18	14S	9W	1948	3,4	1
(HORSE PRAIRIE)								
Bloody Dick	13D10	7600	12	8S	16W	1948	3,4	1
Gold Stone	13D9	8100	11	8S	16W	1948	3,4	1
Lemhi Pass	13E1	7480	9	10S	15W	1948	3,4	1
Terrell Creek	13D12	6650	14	9S	15W	1948	3,4	1
Trail Creek	13E2	7090	15	10S	15W	1948	3,4	1
Selway Junction	13D11	6800	27	8S	15W	1948	3,4	1
(BIG HOLE)								
Big Hole Pass	13D3	7440	28	3S	18W	1948	3,4	1
Big Hole Pass (Below)	13D4	6900	24	3S	18W	1948	3,4	1
East Boundary	13D5	6700	22	3S	17W	1948	3,4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	1,2,3,4,5	1,2
Jahnke Creek	13D6	7340	25	7S	16W	1948	3,4	1
Miner Forks	1306	7300	24	6S	17W	1948	3,4	1
Miner Lake	13D7	6720	10	6S	16W	1945	3,4,5	1
(WISE RIVER)								
Anderson Mdw.	13D14	7000	18	3S	12W	1948	3,4	1
Elk Horn	13D15	8450	15	4S	12W	1934	3,4,5	2
Wise River	13D13	6300	15	2S	12W	1948	3,4	1
(RUBY RIVER)								
Cottonwood	11E2	5900	24	10S	3W	1948	3,4	1
Cottonwood (Upper)	11E1	8400	30	10S	2W	1948	3,4	1
Fleshlight	12D3	6950	22	8S	7W	1945	3,4,5	1
Tobacco Root	12D2	6900	13	4S	4W	1948	3,4	1
Vigilante	11D1	6125	28	9S	3W	1948	3,4	1
MADISON RIVER								
Hebgen	11E5	6550	22	11S	3E	1934	1,2,3,4,5	[illegible]
West Yellowstone	11E7	6700	34	13S	5E	1934	1,2,3,4,5	2
Norris Basin	10E2	7500	44°-44'		110°-42'	1935	3,4	[illegible],6
GALLATIN RIVER								
Devil's Slide	10D4	8100	14	5S	6E	1935	2,3,4,5	2,6
Hood Meadow	10D3	6600	22	4S	6E	1934	2,3,4,5	2,6
Mystic Lake	10D2	6600	30	3S	7E	1935	2,3,4	6,7
New World	10D1	6700	24	3S	6E	1939	1,2,3,4,5	6,7
21-Mile	11E6	7150	1	11S	5E	1934	1,2,3,4,5	
MISSOURI RIVER MAIN STEM								
Chessman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5	2
Crystal Lake	9C1	6100	24	12N	17E	1941	3,4	1
Grasshopper	10C2	7000	19	9N	8E	1938	3,4	1
Kings Hill	10C1	7950	35	13N	7E	1937	3,4,5	2
Picnic Grounds	12C6	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	12D1	7200	11	1N	7W	1938	2,3,4,5	1
Stemple Pass	12C1	6900	16	13N	7W	1934	3,4,5	2
Ten Mile Creek, Lower	12C2	6250	13	8N	6W	1935	1,2,3,4,5	2
Ten Mile Creek, Middle	12C3	6800	13	8N	6W	1934	1,2,3,4,5	2
Ten Mile Creek, Upper	12C4	8000	19	8N	5W	1935	1,2,3,4,5	2
(TETON RIVER)								
Freight Creek	12A1	6000	13	26N	10W	1948	3,4	1
Waldron Creek	12B2	5600	16	25N	9W	1948	3,4	1
West Fork	12B1	6000	6	25N	9W	1948	3,4	1
(SUN RIVER)								
Bench Mark	12B8	5500	9	20N	10W	1948	3,4	1
Cabin Creek	12B6	5400	33	23N	10W	1949	3,4	1
5-Bull	12B9	5600	36	20N	10W	1948	3,4	1
Gates Park	12B5	5300	31	24N	10W	1949	3,4	1
Goat Mountain	12B7	7000	20	22N	10W	1934	3,4	2
My Lake	13B9	7300	21	23N	12W	1950	3,4	1
Wrong Creek Ridge	12B3	6800	17	25N	10W	1949	3,4	1
Wrong Creek	12B4	5700	32	25N	10W	1949	3,4	1
(MARIAS RIVER)								
Marias Pass	13A5	5250	34	30N	14W	1936	1,2,3,4,5	2
(MILK RIVER)								
Rocky Boy	9A1	5200	15	28N	16E	1941	3,4	[illegible]
(MUSSELSHELL RIVER)								
Grasshopper	10C3	7000	19	9N	8E	1938	3,4	1
(UPPER YELLOWSTONE)								
Camp Senia	9D1	7890	2	8S	18E	1937	4	1
Canyon	10E3	7750	44°-44'		110°-30'	1938	1,2,3,4,5	12
Cooke City	10D7	7400	25	9S	14E	1937	1,2,3,4,5	5
Crevice Mt.	10D5	8400	29	9S	9E	1935	3,4	1
Independence	10D6	8000	22	7S	12E	1941	3,4	12
Lake Camp	10E4	7850	44°-34'		110°-24'	1937	1,2,3,4,5	12
Lupine Creek	10E1	7300	44°-54'		110°-37'	1938	1,2,3,4,5	5
(SHIELDS RIVER)								
Porcupine	10C3	6500	10	4N	10E	1938	3,4	1
LOWER YELLOWSTONE								
(Wind River) Wyoming								
Brooks Lake #3	10F2	9200	23	44N	110W	1939	2,3,4,5	12
Burroughs Creek	9F6	8800	15	43N	107W	1948	2,3,4,5	12
Dinwoodie	9F10	10000	9	[illegible]	105W	1948	2,3,4,5	12
Dry Creek	9F9	9500	34	4N	[illegible]W	1948	2,3,4,5	12
DuNoir	9F2	8750	27	42N	108W	1940	2,3,4,5	12
Geyser Creek	9F3	8500	12	41N	108W	1948	2,3,4,5	12
Hobbs Park	9G2	10000	22	2S	3W	1948	2,3,4,5	12
Little Warm	9F4	9500	24	41N	108W	1948	2,3,4,5	12
Mosquito Park R.S.	9G3	9500	23	2S	3W	1940	2,3,4,5	12
Sheridan R.S.	9F1	7500	3	42N	109W	1939	2,3,4,5	12
St. Lawrence R.S.	9F11	9000	26	1N	4W	1940	2,3,4,5	12
T-Cross Ranch	9F5	8000	1	43N	107W	1940	2,3,4,5	12
Trout Creek	9G1	8400	5	2S	2W	1948	2,3,4,5	12
Togwotee Pass	10F1	9600	29	44N	110W	1936	2,3,4,5	10
(Popo Agie River) Wyoming								
Blue Ridge	8G2	9500	23	31N	101W	1939	2,3,4,5	12
Grannier Meadows	8G4	9000	19	30N	100W	1936	2,3,4,5	12
Larsen Creek	9G4	9000	12	30N	103W	1948	3,4,5	12
Sawmill Glade	8G1	8500	3	31N	101W	1939	2,3,4,5	12
South Pass	8G3	9000	13	30N	101W	1939	2,3,4,5	12

MISSOURI RIVER DRAINAGE CONT.

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Location Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By:[b]
BIG HORN RIVER Wyoming								
Beavers Mill	9F8	8900	6	43N	102W	1948	2,3,4,5	12
Owl Creek	8F1	8700	36	43N	101W	1948	2,3,4,5	12
Tensleep R.S.	7E3	8300	30	49N	86W	1935	4,5	1
Timber Creek	9E2	8800	25	47W	103W	1948	4,5	12
Ranger Creek	7E1	8800	32	53N	88W	1935	4,5	1
Wood River	9F7	8000	28	46N	103W	1939	2,3,4,5	12
(SHOSHONE RIVER) Wyoming								
East Entrance	10E6	7000	17	52N	109W	1948	1,2,3,4,5	5
Sylvan Pass	10E5	7100	12	52N	110W	1936	1,2,3,4,5	5
TONGUE RIVER Wyoming								
Big Goose	7E2	7700	4	53N	86W	1945	2,3,4,5	1
Burgess Ranger Sta.	7E4	7900	36	56N	89W	1950	2,3,4,5	12
Dome Lake	7E5	8800	11	53N	87W	1950	2,3,4,5	12
Lodgepole	9E1	82[illegible]0	32	56N	106W	1940	4,5	1
POWDER RIVER								
North Powder	7E8	8500	5	47N	85W	1951	2,3,4,5	12
Muddy Pass	7E7	9700	11	48N	85W	1950	2,3,4,5	1
Soldier Park	7E6	8700	36	51N	85W	1950	2,3,4,5	12
Sour Dough	6E1	8500	17	49N	84W	1936	2,3,4,5	1
Red Fork	7E1	7000	18	43N	85W	1936	2,3,4,5	12

COLUMBIA RIVER BASIN

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Location Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By:[b]
KOOTENAI RIVER								
Baree Mountain	15B1	6000	1	25N	31W	1937	4,5	1
Blue Bird Basin	14A1	6800	24	37W	26W	1937	4,5	1
Red Mountain	15A1	6000	4	36N	29W	1937	3,4,5	1
FLATHEAD RIVER								
Basin Creek	13B14	5000	11	19N	12W	1951	2,3,4,5	1
Big Creek	13B3	6750	6&7	22N	18W	1941	3,4,5	4
Brush Creek	14A4	5000	13	30N	26W	1937	3,4,5	1
Cattle Queen	13A1	4700	7	35N	17W	1939	3,4,5	5
Desert Mountain	13A2	5600	24	31N	19W	1937	1,2,3,4,5	1
HellRoaring Divide	14A3	5770	35	32N	22W	1942	3,4,5	1
Holbrook	13B13	4530	18	21N	13W	1951	1,2,3,4,5	1
Kishenehn	14A2	4300	7	37W	21W	1946	4,5	5
Limestone Pass	13B8	7000	28	18N	12W	1948	3,4,5	1
Logan Creek	14A5	4300	34	30N	24W	1937	3,4,5	1
Maries Pass	13A5	5250	34	30N	14W	1934	1,2,3,4,5	2
Snow Lab. #16	13A9	52[illegible]0	15	29N	14W	1946	1,2,3,4,5	2
Spotted Bear Mt.	13B2	7000	23	25N	15W	1948	3,4,5	1
Strawberry Lake	13A10	6500	11	28N	19W	1948	3,4,5	1
Trinkus Lake	13B1	6500	9	25N	17W	1948	3,4,5	1
Trout Lake #2	13A12	3600	21	28N	17W	1948	3,4,5	1
Upper Holland Lake	13B5	7000	28	20N	16W	1948	3,4,5	1
Twin Creeks	13B11	3580	14	26N	16W	1951	2,3,4,5	1
Quintonkon	13A15	3800	11	26N	17W	1951	2,3,4,5	1
Coyote Hill	13B10	4200	12	18N	16W	1951	1,2,5,4,5	1
El Dorado Mine	13C9	7800	23	8N	12W	1946	4	11
Gold Creek Lake	15C8	7200	14	8N	12W	1946	4	11
Intergaard	13C4	6450	6	5N	13W	1939	2,3,4	3
Lubrecht Forest	13C8	5400	31	14N	15W	1951	1,2,3,4,5	13
North Fork Jocko	13B7	6330	5	17N	17W	1941	3,4,5	4
Picnic Grounds	12C6	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	12D1	7200	11	1N	7W	1938	2,3,4,5	1
Rainy Lake	13B6	4300	11	18N	16W	1947	3,4,5	1
Slide Rock Mountain	13C2	7100	26	10N	16W	1937	4	1
Southern Cross	13C5	6500	9	5N	13W	1939	2,3,4	3
Stemple Pass	13C1	6900	16	13N	7W	1934	3,4,5	2
Storm Lake No. 2	13C7	7780	19	4N	13W	1939	2,3,4	1
Stuart Mill	13C6	6500	19	5N	13W	1939	2,3,4	3
Stuart Mountain #1	13C1	7400	6	14N	18W	1936	4	1
PEND OREILLE RIVER								
Baree Mountain	13B1	6000	1	25N	31W	1937	4,5	1
Freezeout Submit #2	15B10	6800	21	15N	27W	1951	4	1
Hoodoo Creek	15C1	6200	9&16	14N	27W	1937	4	1
BITTERROOT RIVER								
East Fork Ranger Stn.	13D1	5400	16	2N	17W	1937	4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	1,2,3,4,5	1
Mud Creek Pasture	14C1	4600	24	11N	24W	1937	3	1
Nez Perce Camp	14D2	5580	19&20	1S	23W	1937	4	1
Nesperce Pass	14D1	6575	32	28N	16E	1957	4	1
Skalkaho Summit	13C3	7259	30	6N	17W	1937	4	1

SASKATCHEWAN RIVER BASIN

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Location Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By:[b]
ST. MARY RIVER								
Iceberg Lake	13A3	6000	48°-50'		113°-42'	1922	5	2,8
Piegan Pass #4	13A4	5000	48°-46'		113°-40'	1922	5	2,8
Piegan Pass #6	13A6	6500	48°-45'		115°-42'	1922	5	2,8
Mount Allen #7	13A7	7000	48°-44'		113°-40'	1922	5	2,8
Ptarmigan #8	13A8	5800	48°-50'		113°-42'	1922	5	2,8

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a. Numerals 1,2,3,4, and 5 refer to January 1, February 1, March 1, April 1, and May 1

b. Numerals refer to Agency that secures the snow survey as follows:

1. U.S. Forest Service
2. U.S. Geological Survey and U.S. Engineer Corps
3. Montana Power Company
4. U.S. Indian Service
5. National Park Service
6. Montana Experiment Station
7. City of Bozeman
8. Dominion Water and Power Bureau
9. U.S. Fish and Wildlife Service
10. U.S. Bureau of Reclamation
11. Deerlodge Citizens Committee
12. Soil Conservation Service
13. Montana State Forestry School

STORAGE IN RESERVOIRS OF MONTANA April 1, 1953

MISSOURI RIVER BASIN - MONTANA

RESERVOIR	Location on or diversion from	Usable Capacity	Reservoir Volumes in 1,000's a.f.				
			1953	1952	1951	1950	10-yr. average 1943 - 1952
Lima Reservoir	Beaverhead	84.00	32.0	35.0	48.3	33.6	41.39
Ruby Reservoir	Ruby River	38.85					
Willow Creek Reser.	Willow Creek	17.76					
Hebgen Lake	Madison River	345.00	191.6	225.2	232.4	216.6	280.5
Ennis Lake	Madison River	41.00	29.2	38.7	36.0	35.4	35.9
Middle Creek Reser.	Hyalite Creek						
Lake Sewall	Missouri River	37.80	32.1	20.6	21.0	24.0	29.9
Hauser Lake	Missouri River	62.50	23.9	38.0	38.9	28.8	41.3
Lake Helena	Missouri River	10.45	.450	3.0	3.21	1.13	
Holter Lake	Missouri River	81.92	38.9	37.6	74.4	30.8	52.6
Gibson Reservoir	N.Fk. Sun River	105.00	64.3	66.9	80.6	46.6	55.3
Willow Creek Res.	N.Fk. Sun River	32.30		25.5	26.0	3.8	15.4
Pishkun Reservoir	N.Fk. Sun River	32.00		23.0	18.9	18.8	18.9
Bynum Reservoir	Teton River						
Lower Two Medicine Lake	Two Medicine River	14.00					
Four Horns Lake	Badger Creek	20.00		8.6		6.0	8.15
Swift Reservoir	Birch Creek	30.00	13.6	25.3	30.0	21.3	25.4
Lake Francis	Dupuver & Birch Cr.	112.00	97.9	94.1	96.5	83.3	97.3
Ackley Lake	Judith River	5.82		3.74	4.86	4.36	4.63
Durand Reservoir	N.Fk. Musselshell	7.01	4.67		6.10	6.39	
Martinsdale Reservoir	S.Fk. Musselshell	23.10	11.96		12.08	10.9	
Deadman Basin "	Musselshell River	52.50					
Fort Peck Reservoir	Missouri River	19,000.00	12750	12390	12960	11940	11993
Fresno Reservoir	Milk River	127.20	85.92	147.7	99.88	17.68	83.49
Nelson Reservoir	Milk River	66.80		37.02	15.67	5.74	30.2
Mystic Lake	W.Rosebud Creek	20.80	4.61	4.63	5.25	4.26	6.16
Cooney Reservoir	Red Lodge Creek	27.50		13.45	14.05	14.08	17.13
Tongue River Reservoir	Tongue River	73.90	17.96	39.08	8.98	13.92	19.35
Sherburne Lake	Swiftcurrent Cr.	66.10	18.88	19.70	8.98	37.9	21.5

YELLOWSTONE RIVER BASIN - Wyoming

Buffalo Bill Reservoir	Shoshone River	456.60	154.8	202.3	269.1	169.7	263.9
Boysen Reservoir	Wind River	819.80	557.0	152.4	-	-	-
Pilot Butte Reservoir	Wind River	30.10	23.500	13.2	13.8	13.7	16.9
Bull Lake Reservoir	Wind River (Bull Creek)	155.00	56.0	61.2	79.5	6.2	61.1

STORAGE IN RESERVOIRS OF MONTANA April 1, 1953

COLUMBIA RIVER BASIN

RESERVOIR	Location on or diversion from	Usable Capacity	Reservoir Volumes in 1,000's a.f.				
			1953	1952	1951	1950	10-yr. average 1943 - 1952
Georgetown Lake	Flint Creek	31.00	23.8	20.9	19.9	18.4	22.4
E.Fk. Creek Res.	E.Fk. Rock Creek	16.04					
Nevada Creek Res.	Nevada Creek	12.60					
W.Fk. Bitterroot Res.	W.Fk. Bitterroot	31.70			1.0	3.5	7.0
Como Lake	Rock Creek	34.80	5.65	13.6	19.9	19.9	14.0
Hungry Horse Reservoir	So.Fk.Flathead Riv.	3,500.00	719.7	68.1			
Flathead Lake	Flathead River	1,791.00	641.0	572.3	651.6	609.0	600.2
Little Bitterroot	Little Bitterroot*	36.10	30.84	36.12	35.66	29.00	19.45
Dry Fork Reservoir	Dry Fork Creek*	6.70	5.02	4.81	5.14	4.91	3.41
Mission Valley Res.	Flathead Irr.Proj.**	98.60	36.62	49.86	52.48	26.88	40.52
Lower Jocko Lake	Jocko Creek	7.6	Sno-bound	.406	-	-	-

* Sum of two reservoirs on Little Bitterroot

* Sum of two reservoirs on Dry Fork Creek

** Sum of (8) eight reservoirs on Project

PRECIPITATION DATA FOR April 1, 1953
MONTANA

Station	Elevation	1952			1953			March Dept. from Normal	Accumulated Precipitation		
		Current Precipitation									
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.		1952-53	Normal	Departure
WEST OF DIVIDE											
Fortine	3000	.05	.28	.87	2.96	.71	0.90	-0.26	5.77	8.00	-2.23
Butte (Airport)	5533	.06	.75	.24	.73	1.03	0.45	-0.19	2.63	3.13	-0.50
Phillipsburg	5280	T	1.07	.28	1.27	.94	0.56	-0.42	4.12	5.03	-1.19
Hamilton	3529	.11	.64	.27	1.60	.35	0.42	-0.27	3.03	4.66	-1.63
West Glacier	3154	.08	.86	2.43	7.07	3.24	1.62	-0.04	15.11	15.11	0.00
Summit (Marias)	5213	.75	1.63	3.12	14.00	4.50	3.20	-0.08	27.20	17.54	+9.66
Ovando 1 SW	4101	.13	.65	1.16	3.02	1.40	0.24	-1.02	6.60	8.71	-2.11
Trout Creek	2485	.26	.37	3.42	13.14	3.29	1.37	-1.68	21.85	19.77	+2.08
Thompson Falls	2435	.13	.38	1.03	7.30	1.96	0.48	-1.45	11.28	11.57	-0.59
Average (9)		.17	.72	1.42	5.68	1.93	1.03	-0.68	10.84	10.39	+0.45
CENTRAL DIVISION											
Babb	4300	.14	.96	.08	2.24	1.53	1.52	+0.41	7.31	5.98	+1.33
Havre	2488	.01	.42	.12	.26	.58	0.45	-0.06	1.84	3.63	-1.79
Great Falls (airport)	3664	.16	1.36	.08	.55	1.46	0.74	-0.12	4.35	4.23	+0.12
Helena (airport)	3893	.35	1.05	.28	.51	1.02	0.22	-0.57	3.43	3.27	+0.16
Lewistown (airport)	4132	.37	.65	.08	.44	.79	0.31	-0.72	2.64	3.30	-0.66
Livingston	4485	.18	.52	.18	.50	.77	0.56	-0.30	2.71	4.51	-1.80
Wisdom	6058	.13	.35	.43	1.46	1.19	0.54	-0.28	4.76	4.57	+0.19
West Yellowstone	6669	.13	.68	2.23	2.20	2.05	1.65	-0.57	8.92	12.72	-3.80
Mystic Lake	6558	.19	1.48	.47	1.60	2.04	1.34	-0.76	7.12	8.73	-1.61
Average (9)		.17	.83	.44	1.08	1.38	0.70	-0.44	4.78	5.66	-0.88
EASTERN DIVISION											
Malta	2255	.01	.18	.26	.50	.52	0.73	+0.19	2.20	2.98	-0.78
Fort Peck	2180	T	.04	.11	.21	.67	0.28	-0.22	1.31	2.65	-1.34
Medicine Lake	1962	.11	.10	.08	.70	.07				2.40	
Circle	2428	.03	.17	T	.11	.25	0.23	-0.77	2.02	4.45	-2.43
Billings #2	3139	.47	.32	.15	.36	.47	0.45	-0.39	2.24	4.44	-2.20
Miles City	2392	.01	.61	.11	.70	.48	0.68	-0.18	2.59	4.11	-1.52
Glendive	2076	.02	.58	.05	.17	.36	0.66	-0.18	1.84	3.59	-1.75
Broadus	3026	.04	T	.06	.85	.53	0.42	-0.30	1.90	3.76	-1.86
Average (8)		.08	.25	.10	.45	.42	0.49	-0.22	2.01	3.55	-1.04

PRECIPITATION DATA FOR April 1, 1953
NORTHERN WYOMING

Station	Elevation	1952			1953			March Dept. from Normal	Accumulated Precipitation		
		Current Precipitation							1952-53	Normal	Departure
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.				
BIG HORN RIVER BASIN											
Cody	4984	.03	.21	.02	.14	.97	0.18	-.35	1.55	2.69	-1.14
Lovell	3825	.00	.19	.11	.12	.18	0.30	-0.06	.90	2.24	-1.34
Worland	4061	.00	.16	.08	.28	.40	0.40	-0.02	1.32	2.35	-1.03
Sunshine 4 SW	6930	.36	1.94	.18	.54	.52	0.45	-0.78	5.31	5.29	+0.02
Thermopolis	4336	.02	.30	.06	.80	.72	0.52	-0.39	2.42	3.86	-1.44
Riverton	4954	.16	.14	.06	.56	.42	0.23	-0.26	1.57	2.73	-1.16
Dubois	6917	.03	.39	.41	.42	.13	0.37	-0.17	1.75	3.01	-1.26
Average (7)		.08	.47	.13	.26	.47	0.35	-0.29	2.12	3.17	-1.05
TONGUE RIVER BASIN											
Sheridan	4021	.22	.27	.50	1.14	1.53	0.77	-0.39	4.43	5.05	-0.62
POWDER RIVER BASIN											
Arvada	3680	.19	.19	.65	.69	.53	0.28	-0.47	2.53	3.36	-0.83
Metz Ranch	5280	.02	.04	.23	.40	.91	0.27	-0.56	1.87	3.46	-1.59
Gillette	4542	.18	.70	.86½	.62	.94	T	-1.03	3.30	4.46	-1.16
Nine Mile Creek	5000	.10	.40	.27	1.13	.94					
Mid West	4850	.10	1.02	.12	.74	2.78	0.23	-0.86	4.99	4.40	+0.59
Average (5)		.12	.47	.43	.61	1.22	0.20	-0.72	3.17	3.92	-0.75

MONTANA SNOW SURVEYS April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches)							Years
					April 1953	April 1st Past Records				Average Data April 1st		
						1952	1951	1950	1949	Avg.	% Avg.	
JEFFERSON RIVER												
(Rock-Beaverhead)												
Lakeview Ridge	11E3	7400	4/1	33	9.8	11.1	10.1	11.6	10.0	10.4	94	6
Lakeview Canyon	11E4	6930	4/1	40	10.4	14.6	11.3	10.3	12.7	11.8	88	6
Limekiln	12E2	6950	3/11	9	2.4	2.8	0	.8	4.1	2.2	86	6
White Pine Ridge	12E1	8850	3/11	28	7.0	8.7	4.4	7.2	7.2	7.0	100	6
*Kilgore	11E12	6200	3/30	21	7.2	17.1	8.6	15.5	11.0	10.9	66	17
*Camp Creek	12E3	6800	3/30	30	10.6	23.7	8.3	13.9	10.7	9.9	107	18
*Blue Ledge Mine	11E11	6700	3/30	41	15.2	29.7	14.9	26.1	16.7	16.6	92	16
(Horse Prairie)												
Bloody Dick	13D10	7600	3/15	43	14.2	11.8	15.4	11.6	15.2	13.1	108	6
Gold Stone	13D9	8100	3/15	53	19.0	16.6	20.5	15.2	19.0	17.2	111	6
Lemhi Pass	13E1	7400	3/13	30	8.2	11.5	12.5	9.5	11.8	10.6	77	6
Terrell Creek	13D12	6650	3/12	17	5.1	5.0	6.8	3.0	6.0	4.9	104	6
Trail Creek	13E2	7090	3/13	31	8.1	8.8	10.8	7.4	10.4	9.3	87	6
Selway Junction	13D11	6500	3/12	33	11.0	9.8	11.6	7.5	12.8	9.9	111	6
(Big Hole)												
Big Hole Pass	13D3	7440	3/17	53	19.3	23.4	21.1	18.2	24.5	20.2	96	6
Big Hole Pass (Below)			3/17	48	16.5	17.4	17.6	15.4	19.6	16.5	100	6
East Boundary	13D5	6700	3/17	33	10.3	9.6	12.5	8.8	11.8	10.1	102	6
Gibbons Pass	13D2	7100	4/1	72	28.0	32.4	28.3	30.0	29.0	23.0	119	15
Jahnke Creek	13D8	7340	3/15	44	14.4	13.3	14.0	10.8	14.4	12.7	113	6
Miner Forks	13D6	7300	3/14	46	14.4	14.4	17.3	11.4	13.8	13.6	106	6
Miner Lake	13D7	6720	3/14	36	9.6	9.9	10.2	7.6	10.6	8.7	110	9
*Moose Creek	13D16	6200										
(Wise River)												
Anderson Meadow	13D14	7000	3/18	31	8.6	11.2	10.0	8.3	10.6	9.3	93	6
Elk Horn	13D15	8450	3/29	34	10.5	12.5	12.7	10.0	13.6	9.5	110	15
Wise River	13D13	6300	3/18	21	6.0	6.3	5.6	5.2	7.4	5.9	102	6

*Adjacent Basin

MONTANA SNOW SURVEYS - April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches)							Years
					April 1953	April 1st Past Records				Average Data April 1		
						1952	1951	1950	1949	Avg.	% Avg.	
JEFFERSON RIVER (Con't.)												
(Ruby River)												
Flashlight	12D3	6950	3/19	27	7.4	6.2	5.7	4.2	6.7	5.8	127	9
Tobacco Root	12D2	6900	3/24	38	11.7	13.6	10.4	11.4	13.3	11.9	98	6
Vigilante	11D1	6125	3/19	No Snow	0.0	3.6	0	1.1	0	1.2	-	6
MADISON RIVER												
Hebgen	11E5	6550	3/27	36	12.2	19.6	10.9	14.0	14.6	12.6	97	18
West Yellowstone	11E7	6700	3/28	34	10.9	18.9	13.9	14.2	14.4	11.6	94	17
21-Mile	11E6	7150	3/28	47	16.8	28.6	19.2	21.0	20.6	17.2	98	17
*Big Springs	11E9	6500	3/28	55	21.7	34.7	22.4	25.9	27.8	21.4	101	18
*Island Park	11E10	3600	3/29	41	16.2	30.4	17.6	21.6	22.5	16.3	100	18
*Valley View	11E8	6500	3/29	44	15.6	30.0	14.9	19.5	18.8	15.5	100	18
Norris Basin	10E2	7500										
GALLATIN RIVER												
Devil's Slide	10D4	8100	3/28	55	18.8	27.5	19.9	20.2	21.0	20.3	92	15
Hood Meadow	10D3	6600	3/27	24	7.6	13.7	9.4	7.3	10.8	8.7	87	15
Mystic Lake	10D2	6600	3/25	22	6.6	10.0	8.1	8.4	10.7	7.6	87	17
New World	10D1	6700	3/25	32	9.8	13.1	10.6	10.8	11.4	10.2	96	15
21-Mile	11E6	7150	3/28	47	16.8	28.6	19.2	21.0	20.6	17.2	98	17

*Adjacent Basin

MONTANA SNOW SURVEYS - April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches)							Years
					April 1953	April 1st Past Records				Average Data April 1st		
						1952	1951	1950	1949	Avg.	% Avg.	
MISSOURI RIVER MAIN STEM												
Chessman Reservoir	12C5	6200	4/2	14	4.5	6.7	4.6	4.4	7.6	4.8	94	18
Crystal Lake	9C1	6100	4/4	32	10.2	16.4	10.6	10.5	15.4	12.2	84	13
Grasshopper	10C2	7000	3/31	15	4.4	8.4	4.0	5.8	8.1	5.3	82	16
Kings Hill	10C1	7950	4/2	39	11.6	17.0	13.7	17.1	16.9	13.3	87	15
Picnic Grounds	13C6	6500										
Pipestone Pass	12D1	7200	4/3	24	6.3	7.6	6.8	4.2	7.9	5.8	108	15
Stemple Pass	12C1	6900	4/3	35	10.4	11.1	11.6	13.5	10.3	9.8	106	15
Tenmile, Lower	12C2	6250	4/1	22	6.6	9.4	8.3	7.6	8.8	6.5	102	18
Tenmile, Middle	12C3	6800	4/1	36	11.6	13.0	12.0	12.0	12.8	10.6	110	18
Tenmile, Upper	12C4	8000	4/1	41	14.0	15.8	15.4	15.8	14.8	13.4	105	18
(Teton River)												
Fright Creek	12A1	6000	4/1	59	21.4	18.1	22.3	22.3	17.9	19.2	111	6
Waldron Creek	12B2	5600	3/31	17	6.2	7.2	9.4	10.7	9.5	8.2	76	6
West Fork	12B1	6000	3 /31	52	20.6	19.6	21.0	24.6	19.9	19.9	103	6
(Sun River)												
Benchmark	12B8	5500	3/30	19	7.5	11.6	12.3	12.8	12.0	10.9	69	6
Cabin Creek	12B6	5400	4/1	19	5.8	8.2	6.7	9.5	7.5	7.5	77	5
5-Bull	12B9	5600	3/30	16	5.2	9.6	9.2	9.2	8.8	8.5	61	6
Gates Park	12B5	5300	4/1	33	8.7	12.8	11.5	13.1	11.7	11.6	75	5
Goat Mountain	12B7	7000	4/1	36	10.4	14.4	12.7	15.2	13.4	10.3	101	15
Wrong Ridge	12B3	6800	3/30	53	20.8	21.2	26.2	28.5	22.5	23.8	88	5
Wrong Creek	12B4	5700	3/29	38	11.7	15.6	17.3	20.0	15.7	16.1	67	5
(Marias River)												
Marias Pass	12B5	5250	4/1	48	16.8	20.7	24.5	28.7	21.4	17. 6	95	18
(Milk River)												
Rocky Boy	9A1	5200	4/1	13	4.6	5.1	3.8	5.1	6.7	5.4	85	12
(Musselshell)												
Grasshopper	10C2	7000	3/31	15	4.4	8.4	4.0	5.8	8.1	5.3	82	16

MONTANA SNOW SURVEYS - April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches)							Years
					April 1953	April 1st Past Records				Average Data April 1st		
						1952	1951	1950	1949	Avg.	% Avg.	
UPPER YELLOWSTONE												
Camp Senia	9D1	7890	3/31	20	5.3	7.7	6.8	5.8	7.4	7.1	75	16
Canyon	10E3	7750	3/31	41	14.3	21.4	18.9	18.5	18.3	16.8	85	8
Cooke City	10D7	7400	4/1	26	8.8	11.9	9.2	8.4	10.6	7.9	111	17
Crevice Mt.	10D5	8400	4/1	31	9.2	14.6	9.5	9.4	13.0	10.0	92	19
Independence	10D6	8000	3/25	53	19.7	22.2	19.2	21.2	-	18.2	108	12
Lake Camp	10E4	7850	3/31	28	9.5	14.2	11.7	13.6	15.2	10.8	91	16
Lodgepole, Wyoming	9E1	8200	4/1	31	10.1	13.0	15.8	-	14.9	11.0	92	16
Lupine	10E1	7300	3/30	31	9.3	16.4	10.8	11.7	14.2	10.2	91	15
*Lewis Lake Divide	10E9	7000	4/1	106	45.1	52.8	50.4	53.0	52.1	50.6	89	5
*Astor Creek	10E8	7700	4/1	80	33.0	41.3	39.9	38.8	38.6	32.0	103	10
*Tom Thumb Summit	10E7	7900	4/1	54	21.1	29.6	27.8	28.6	27.4	25.1	84	7
(Shields River)												
Porcupine	10C3	9200	3/30	28	8.2	10.8	8.2	6.8	10.4	6.4	128	15

* Adjacent Basin

MONTANA SNOW SURVEYS - April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches) April 1953	April 1st Past Records 1952	1951	1950	1949	Average Data April 1st Avg.	% Avg.	Years
LOWER YELLOWSTONE (NORTHERN WYOMING) (Wind River, Wyo.-above Div. Dam)												
Brooks Lake #3	10F2	9200	3/30	68	28.1	30.2	36.2	33.2	29.3	24.9	113	18
Burroughs Creek	9F6	8800	3/30	40	14.8	12.6	26.7	19.8	13.9	17.6	84	5
Du Noir	9F2	8750	3/29	26	8.2	7.6	16.6	13.6	10.5	10.1	81	13
Geyser Creek	9F3	8500	3/29	33	7.5	9.5	12.8	11.3	11.1	10.2	73	5
Little Warm	9F4	9500	3/29	50	18.7	19.2	27.7	26.1	19.8	22.3	84	5
Sheridan	9F1	7500	3/30	26	8.7	7.4	10.8	10.0	9.8	7.3	121	18
T-Cross Ranch	9F5	8000	3/31	22	7.0	7.9	13.3	8.3	7.2	7.4	95	13
*Togwotee Pass	9F1	9600	3/31	71	27.3	32.2	39.9	38.4	32.1	28.8	95	18
Dinwoodie	9F10	10000	3/28	38	12.7	14.5	17.9	18.2	-	15.8	80	4
Dry Creek	9F9	9500	3/28	22	6.2	7.4	9.7	10.5	-	8.4	74	4
Hobbs Park	9G2	10000	3/25	42	14.2	23.0	20.9	27.7	22.8	21.7	66	5
Mosquito Park	9G3	9500	3/25	24	6.8	12.2	8.0	12.6	9.3	9.4	72	9
St. Lawrence	9F11	9000	3/26	20	5.9	10.5	7.8	10.2	9.7	8.0	62	10
Trout Creek	9G1	8400	3/25	26	7.4	10.0	2.9	7.1	8.2	7.1	104	5
*Kendall	9F12	7900										
*Loomis Park	10F5	8500										
*Black Rock	10F3	8600	3/31	56	20.2	24.7	30.2	28.9	23.6	21.7	94	18
*Yellow Jacket	10F5	6775	3/31	16	3.2	7.1	9.8	-	8.2	6.5	49	16
POPO AGIE RIVER												
Blue Ridge	8G2	9500	3/27	32	10.1	24.8	11.1	20.2	16.7	12.3	82	14
Grannier Meadows	8G4	9000	3/27	36	12.1	22.9	12.7	24.2	17.5	12.9	94	17
*Larsen Creek	9G4	9000	4/1	24	6.5	12.8	13.9	22.8	-	14.0	46	4
Sawmill Glade	8G1	8500	3/27	27	8.1	14.3	6.0	9.9	10.7	8.1	100	14
South Pass	8G3	9000	3/27	36	12.3	12.3	23.1	14.6	24.4	14.3	86	15

*Adjacent Basin

MONTANA SNOW SURVEYS - April 1, 1953

MISSOURI BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches)							Years
					April 1953	April 1st Past Records				Average Data April 1st		
						1952	1951	1950	1949	Avg.	% Avg.	
BIG HORN RIVER (Wyoming)												
Beavers Mill	9F8	8000	3/27	19	6.3	6.9	9.1	8.9	7.9	7.8	81	5
Owl Creek	8F1	8700	3/28	16	4.7	6.7	7.3	6.2	6.6	6.3	71	5
Timber Creek	9E2	9000	4/2	21	4.3	5.5	7.2	4.7	7.5	5.8	74	5
Wood River	9E7	8000	4/1	16	3.7	4.0	7.4	5.0	7.4	5.4	69	14
Tensleep R.S.	7E3	8200	4/6	27	6.9	10.0	7.2	8.4	8.5	7.1	97	17
Ranger Creek	7E1	8800	4/1	34	7.8	10.3	7.1	9.0	9.8	8.2	95	16
SHOSHONE RIVER												
East Entrance	10E6	7000	4/1	24	8.9	13.8	14.8	11.3	17.6	13.3	67	5
Sylvan Pass	10E5	7100	4/1	38	13.5	17.2	19.2	18.6	19.4	14.5	93	16
TONGUE RIVER												
Burgess Junction	7E4	7900	3/31	37	13.6	12.4	15.8	12.0	-	13.4	101	4
Big Goose	7E2	7700	3/31	15	4.3	5.0	3.8	2.5	5.3	4.3	100	18
Dome Lake	7E5	9000	3/31	27	7.2	-	7.2	5.9	-	6.8	105	3
POWDER RIVER												
Sour Dough	6E1	8500	3/30	24	4.6	6.8	7.0	5.1	7.7	5.9	78	17
North Powder	7E8	8500	3/31	19	5.8	10.3	6.8	-	-	7.6	76	3
Soldier Park	7E6	8700	3/31	11	2.6	5.1	5.8	4.6	-	5.5	47	4
Muddy Pass	7E7	9700	3/30	32	8.0	9.9	8.1	8.4	-	8.6	93	4
CHEYENNE RIVER (South Dakota)												
Upper Spearfish	1 S.D.	6500	4/1	26	8.6	10.2	3.5	7.9	10.8	7.2	119	10

MONTANA SNOW SURVEYS - April 1, 1953

COLUMBIA BASIN

Drainage Basin and Snow Course **	No.	Elev.	Date of Survey 1953	Snow Depth (In.) 1953	Water Content (Inches) April 1953	April 1st Past Records 1952	1951	1950	1949	Average Data April 1st Avg.	% Avg.	Years
UPPER CLARK FORK												
Coyote Hill	13B11	4200	3/30	30	11.7	14.9	-	-	-	-	-	2
Chessman Res.	12C5	6200	4/2	14	4.5	6.7	4.6	4.4	7.6	4.8	94	18
East Fork R.S.	13D1	5400	3/28	22	8.3	10.3	9.2	7.6	10.8	5.7	146	15
Intergaard	13C4	6450										
Lubrecht Forest #6	13C8	5400	4/1	5	1.4	5.9	3.6	-	-	-	-	3
North Fork Jocko	13B7	6330	4/1	107	42.7	44.2	45.8	56.3	40.0	40.9	104	13
Picnic Grounds	13C6	6500										
Pipestone Pass	12D1	7200	4/3	24	6.3	7.6	6.8	4.2	7.9	5.8	108	15
Rainy Lake	13B6	4200	3/30	30	11.7	17.0	5.1	18.9	14.5	12.6	93	7
Skalkaho Summit	13C3	7258	4/3	68	26.5	26.6	34.4	26.3	36.2	25.2	105	15
Slide Rock Mt.	13C2	7100	4/1	45	15.1	15.5	17.6	18.0	18.8	14.0	108	17
Southern Cross	13C5	6500										
Stemple Pass	13C1	6900	4/3	35	10.4	11.1	11.6	13.5	10.3	9.8	106	15
Storm Lake #2	12C7	7780	4/3	49	17.0	20.5	15.6	16.2	15.6	14.8	115	15
Stuart Mill	13C6	6500										
Stuart Mill #1	13C1	7400	4/1	72	24.4	36.8	33.6	37.9	23.4	29.7	82	17
Tenmile, Lower	12C2	6250	4/1	22	6.6	9.4	8.3	7.6	8.8	6.5	102	18
Tenmile, Middle	12C3	6800	4/1	36	11.6	13.0	12.0	12.8	12.8	10.6	110	18
Tenmile, Upper	12C4	8000	4/1	41	14.0	15.8	15.4	15.8	14.8	13.4	105	18
*Lookout	15B2	5250	4/1	86	33.1	38.3	47.5	48.7	37.5	33.0	100	16

MONTANA SNOW SURVEYS - April 1, 1953

COLUMBIA BASIN

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					April 1953	April 1st Past Records				Average Data April 1st		
						1952	1951	1950	1949	Avg.	% Avg.	
KOOTENAI												
Blue Bird	14A1	6800	3/31	107	40.2	40.4	45.3	46.3	38.2	36.2	111	15
Brush Creek	14A4	5000	3/31	38	11.8	11.8	11.6	18.9	19.0	11.9	98	9
Farrow			3/29	38	14.4	-	-	-	-	-	-	1
Fernie	Canada	3500	4/1	20	7.0	9.0	11.6	14.9	7.7	7.8	90	17
Fernie (New)	Canada	4100	3/26	41	13.7	14.6	16.7	-	-	-		3
Fernie Ridge	Canada	5600	3/26	70	25.2	24.1	-	-	-	-	-	2
Ferguson	Canada	3000	3/31	47	19.7	19.2	23.7	22.9	21.1	19.5	101	16
Gray Creek	Canada	5100	3/30	50	16.8	19.1	23.0	24.0	20.5	20.5	82	6
Kimberley	Canada	3800	3/31	16	6.0	7.3	9.4	11.2	7.1	5.5	109	16
Marble Canyon	Canada	5000	3/31	51	14.7	13.4	22.0	15.7	13.0	14.8	100	7
Nelson Creek	Canada	3050	3/30	46	17.7	17.6	18.0	19.9	18.8	14.0	126	16
Red Mt., Montana	15A1	6000	3/30	57	20.0	18.2	22.0	30.4	21.3	18.5	108	15
Sandon	Canada	3500	4/1	38	15.2	12.0	11.8	14.5	12.8	11.1	137	16
Sinclair Pass	Canada	4500	3/30	16	4.3	5.4	9.5	5.9	3.6	4.9	88	17
Sullivan Mine	Canada	5100	4/1	42	14.1	11.3	18.8	21.2	15.3	15.3	92	8
Upper Elk River	Canada	4400	3/31	16	5.6	7.4	10.9	10.6	7.5	8.6	65	6
BITTERROOT												
East Fork R.S.	13D1	5400	3/28	22	8.3	10.3	9.2	7.6	10.8	5.7	146	15
Gibbons Pass	13D2	7100	4/1	72	28.0	32.4	28.3	30.0	29.0	23.0	119	15
Nez Perce Camp	14D2	5580	4/2	46	15.8	18.7	15.2	16.0	20.8	13.6	116	17
Nez Perce Pass	14D1	6575	4/2	52	19.6	24.6	20.0	20.0	24.0	17.7	110	17
Skalkaho Summit	13C3	7258	4/3	68	26.5	26.6	34.4	26.3	36.2	25.2	105	15
Stuart Mt. #1			4/1	72	24.4	36.8	33.6	37.9	23.4	29.7	82	17
*Moose Creek	13D16	6200										
*Kit Carson	14D3	4700	4/1	24	8.1	12.0	9.4	9.0	11.0	7.6	106	17
*Savage Pass	14C4	6000	3/31	80	30.3	-	34.0	34.4	34.6	26.4	115	12
*Powell Pasture	15C3	3700	3/30	41	15.2	-	15.7	20.4	20.5	13.4	113	15
*Packers Meadow	14C2	5700	3/30	55	21.7	25.2	25.5	31.3	34.4	21.7	100	17

*Adjacent Basin

MONTANA SNOW SURVEYS April 1, 1953

COLUMBIA BASIN

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						1952	1951	1950	1949	Avg.	% Avg.	
FLATHEAD RIVER												
Blue Bird	14A1	6800	3/31	107	40.2	40.4	45.3	46.3	38.2	36.2	111	15
Basin Creek	13B14	5000	3/27	21	7.0	11.1	9.1	-	-	-	-	3
Big Creek	13B3	6750	3/31	106	41.7	46.9	44.0	53.8	39.4	40.8	102	13
Brush Creek	14A4	5000	3/31	38	11.8	11.8	11.6	18.9	19.0	11.9	98	9
Cattle Queen	13A1	4700	3/30	90	33.5	32.9	37.5	45.2	35.5	30.7	109	15
Coyote Hill	13B11	4200	3/30	30	11.7	14.9	-	-	-	-	-	2
Desert Mountain	13A2	5600	3/30	44	13.5	18.2	21.6	23.3	19.3	15.3	88	15
Hell Roaring Div.	14A3	5700	3/30	77	29.2	34.2	27.7	37.6	33.4	30.0	97	12
Holbrook	14B13	4530	3/27	21	6.9	11.5	7.8	-	-	-	-	3
Kishenehn	14A2	4300	3/29	27	6.0	7.2	10.3	10.7	7.9	7.7	78	8
Limestone Pass	13B8	7600	4/1	92	36.1	38.8	51.1	47.7	46.3	45.1	80	6
Logan Creek	14A5	4300	3/31	25	6.3	8.4	8.6	10.3	12.5	7.9	80	15
Marias Pass	13A5	5250	4/1	48	16.6	20.7	24.5	28.7	21.4	17.6	95	18
North Fork Jocko	13B7	6330	4/1	107	42.7	44.2	45.8	56.2	40.0	40.9	104	13
Quintonkon	13A13	3800	4/1	43	11.1	18.6	15.7	-	-	-	-	3
Rainy Lake	13B6	4300	3/30	30	11.7	17.0	5.1	18.9	14.5	12.6	93	7
Spotted Bear Mt.	13B2	7000	4/1	33	10.2	16.0	14.6	19.2	19.6	15.8	65	6
Strawberry Lake	13B10	6500	3/30	96	33.1	53.6	41.7	59.1	47.6	46.5	71	6
Trinkus Lake	13B1	6500	3/30	96	36.3	43.3	40.8	57.3	45.0	45.0	72	6
Trout Lake	13A12	3600	4/1	38	13.1	17.4	19.4	27.0	20.7	18.7	70	6
Twin Creeks	13B11	3580	4/1	19	6.5	13.1	9.5	-	-	-	-	3
Upper Holland Lake	13B5	7000	3/30	92	35.5	36.3	37.0	50.8	36.9	39.3	90	5
PEND ORIELLE												
Baree Mt.	13B1	6000	4/1	105	45.8	44.7	44.2	61.3	55.2	40.4	114	15
Freeze Out Summit	15C3	7000	3/31	95	36.2	37.9	48.3	36.6	37.6	31.9	113	17
Hoodoo Creek	13C1	6200	3/31	121	48.1	49.2	56.6	70.0	59.5	46.6	105	17

Federal - State - Private

COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

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"WATER IS THE WEST'S GREATEST RESOURCE"